

Indiana Dunes National Lakeshore and the Presidio Railroad at Golden Gate National Recreation Area in San Francisco are other examples.

Furthermore, quite a number of parks have within them the abandoned grades of railroads dismantled long ago. These include the narrow gauge mining railroad between Searchlight, Nevada, and the Colorado River, in Lake Mead National Recreation Area, and the Hetch Hetchy Railroad (used for dam building) that once penetrated Yosemite.

In recent decades, the National Park Service has acquired several areas that specifically commemorate and preserve railroad history. Golden Spike National Historic Site in Utah preserves the place where, on May 10, 1869, the first transcontinental railroad was completed by the Central Pacific and Union Pacific Railroads. The rich history of the immigrants who built America's railroads is reflected in archeological remains at the site. Immigrants are also key to the story at Allegheny Portage Railroad National Historic Site in Pennsylvania, where the railroad was part of a canal system. Steamtown National Historic Site, also in Pennsylvania, celebrates the era of the steam locomotive on American railroads.

Still other sites deserve consideration by the NPS. The East Broad Top Railroad in southern Pennsylvania, for example, is a wonderfully preserved slice of narrow gauge railroad, complete with locomotives, cars, track, tunnel, bridges, a shop building complete with all its belt-driven machinery, and other structures.

The stories of many of these railroads are covered in the pages of this issue of CRM. But the history of railroads in the United States extends beyond the areas protected by the NPS, of course. As this special issue demonstrates, railroads are a thread woven throughout the fabric of American life, and their legacy—be it trains which are still operated, long-abandoned tracks, archeological remains, works of art and architecture, or simply the stories of those who remember the ways they changed lives—lives on all around us.

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## Railroads as World Heritage Sites

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**T**he World Heritage Convention of 1976 allows the United Nations Educational, Scientific and Cultural Organization (UNESCO) to designate places of outstanding cultural or natural significance around the world as World Heritage Sites. The possibility of designating industrial locations has always been implicit in the Convention but it is only recently that much attention has been given to the task of identifying likely candidates. The International Council on Monuments and Sites (ICOMOS) is responsible for advice on these matters and, in 1997, it commissioned Great Britain's Institute of Railway Studies to recommend guidelines about the kinds of qualities that the World Heritage Committee should look for in railroad sites. The

idea is that the criteria should command broad assent globally.

To understand some of the challenges of coming up with such a list we need to grasp something of the complicated nature of railway history. By the standards of most modern industries, railways have unusually deep historical roots. Railways of a kind arguably existed as far back as the sixth century B.C. Certainly by the 15th-century European miners were making extensive use of lines with wooden rails and vehicles. We can date the mechanically worked railroad to the first two decades of 19th-century Britain. British engineers rapidly gained employment across Europe, building many of the continent's earliest and most important lines. By 1907 there were about 200,000 miles of railways there.

The European monopoly on railways was short-lived, though. By the mid-1820s, entrepreneurs in the United States were planning the Baltimore & Ohio Railroad, an enterprise on an entirely new scale. In 1907 there were about 237,000 miles of route in the U.S., making it by far the largest single network of railroads in the world.

One critically important aspect of these developments was their economic impact. In the 19th century, steam railways were the dominant form of inland transport for any but the shortest of journeys. Railways rapidly developed as the largest and most complex examples of sociotechnical systems that the world had known; their political, financial, business and managerial structures later influenced the growth of large-scale corporate business, particularly in the United States. The railways' advantages of speed, capacity and economy made them more than mere instruments of industrial and business development, however. Culturally, their impact was huge.

The railways' influence was not only felt in those countries that industrialized first. By 1907, there were 168,000 miles of railway outside Europe and North America. Most of these railways were part of the spread of European imperialism before World War I. In European-settled parts of the world, most communities desired the coming of railways as the key to prosperity, while every government wanted them for national development. But railways were expensive, and many states fell into financial dependence on the European banks, mortgaging lands and taxes to pay for lines. Nor did contemporaries often draw attention to the social and environmental downside of the technological triumph of the worldwide spread of railways: the exploitation of humans and natural resources to an unprecedented degree.

The "great" or "golden" age of railways was over in most countries by World War I. Certainly by the middle of the 20th century most of the world's railroad network was in place and, on the whole, the story since then has been one of slow decline, at least in terms of route mileage. But development continues on existing routes, and new lines are still built. Although the materials, traction, and principles of management employed almost invariably differ from those of the pioneering railways, the same basic technical principles appear set to take the mechanically worked railway into its third century.

How can we possibly extract from such a complex—and often contested—history a single set of criteria for World Heritage status? Since all heritage is intimately bound up with the creation of collective identities—be these at the local, regional, national or global level—it is clearly impossible to expect an easy answer. But our fundamental assumption is one common to all modern historiography of large-scale technologies: that railways are above all sociotechnical systems in which it is ultimately impossible to separate out "social" and "technical" aspects. A proper appreciation of the significance of any particular railway site will only be gained by seeing it in the round, as both the product of, and an influence on, wider social circumstances. This perspective stands in sharp contrast to that of many rail fans, who too often see locomotion as being all-important while the specialist infrastructure, the social organisation, and the wider historical context of railways' development are given less weight than they deserve.

Working from this sociotechnical perspective, and having due regard for the kinds of criteria that ICOMOS has used in the past with regard to industrial sites, we have come up with the following proposed guidelines:

A Creative Work Indicative of Genius. A similar criterion has long been applied in the informal ranking of railways around the world. It fits well with the long-standing approach to history that seeks to identify "great men." Modern scholarship suggests that the criterion should be interpreted more widely, however. While not wishing to deny the great skills and abilities of individual engineers such as George and Robert Stephenson, scholars tend to stress the co-operative nature of railway building. Perhaps, then, sites should be taken as memorials not only to the engineers ultimately responsible for their design and construction, but also to all those others—many of whom will never be known—who had a hand in bringing them to completion. Should we not also look for genius in the financing and managerial organisation of railways? In this way, sites could come to symbolise the wider societies and cultures that gave them birth.

The Influence of, and on, Innovative Technology. Railway's primary purpose is to provide a transport service for goods or passen-

gers. But technology serves a critical role in all of this, and thus it is proper that the role of innovative technologies should be acknowledged in any set of criteria. The technology of the railway includes its course—the trackbed and associated structures. The transfer of technologies from and to other industries and transport modes should also be borne in mind. But such technical matters always need to be taken in context. Modern historiography of technology typically requires an interdisciplinary approach; social, economic, environmental and political factors, among others, influenced technical change and development on the railways. To exclude history from technology is to miss a vital part of the story.

**Outstanding or Typical Example.** There is a place for the designation of sites either because they have always been outstanding in some regard or because, although once commonplace or typical, they have become special simply by virtue of their survival. Particular historical events and associations will help with the identification of outstanding locations; originality and authenticity might be factors justifying the designation of railways on the grounds of typicality. Specific structures or locales may also be seen as typical. Something such as a steam locomotive servicing depot which remains complete with all its infrastructure may be worth designating as a symbol both of the technology of the railway and as a place of work. As such places become much rarer, the precise location of survivors becomes less important than the power of what remains on the ground to stand as symbols for what was once commonplace around the world.

**Illustrative of Economic or Social Developments.** Perhaps this is the principal criterion by which sites should be judged.

After all, railways were built to perform a transport function, and this basic function has served many political, social, economic and cultural purposes in addition to fulfilling people's desires to travel and trade. But this very diversity brings its own challenges. The railways' influence on social and economic life has not been the same around the world, a fact that presents us with the problem of identifying just what it is about a particular site that represents a universal experience. The difficulty is made even more complex by the fact that there are many different opinions about the value of what the railways enabled. All this implies that the designation of sites on the basis of this criterion needs to be justified by means of widespread consultation as well as thorough historical studies.

None of these criteria should be taken apart from the others. Since railways are sociotechnical systems, all the criteria ought to be applied to any site nominated for World Heritage status. Of course, individual railways will often be deemed more significant on certain grounds than others. One location might be of great technical significance, another of considerable social or economic value. How then can one weigh the two in the balance? There can be no neat formula: by preferring one railroad site as a World Heritage Site over another we also choose, in some small way, among different ways of understanding our own sense of ourselves.

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